Fork-tailed cutey

Merrily she flies along

BY BARRY SCHIFF

When World War II ended in 1945, a number of existing and emerging airframe manufacturers developed new aircraft, hoping to capitalize on the widely anticipated postwar boom in general aviation. After all, everyone believed that returning military pilots with a passion for flight would help to fill the skies with light airplanes.

Sadly, this sales surge never materialized, and a number of new aircraft died before birth. These included the Douglas Cloudster, Lockheed's Little Dipper, the four-place Taylorcraft, and the Thorp Skyscooter. Another was the innovative Anderson-Greenwood AG–14.

Following wartime stints at Boeing, Ben Anderson and his brother-in-law, Marvin Greenwood, opened shop at the Sam Houston Airport in Houston to develop a general aviation airplane using their own resources. (Greenwood had been assistant chief engineer during development of the Boeing B–29 Superfortress.)

The result was the AG–14, which first flew on October 1, 1947. After a few years of redesigning and tweaking, the aircraft earned its type certificate on June 1, 1950. It sold for $4,200, about the same as a new Cadillac of that era. Such a price, Anderson and Greenwood hoped, would help to make the popular dream of an "airplane in every garage" come true.

PHOTOGRAPHY BY MIKE FIZER

The AG–14 is an attractive, two-place monoplane with an egg-shape fuselage containing a rear-mounted engine and a pusher prop. The tail booms have rectangular cross sections and lead aft to an H-tail reminiscent of the Lockheed P–38 Lightning (although the comparison ends there).

The narrow-chord rectangular wings have an unusually large 9.6-to-1 aspect ratio. The left wing root contains the single-point refueling receptacle, and 24 gallons of avgas flow from there to a center tank between the cabin and the engine.

Mechanics were delighted with engine accessibility. You simply raise the "hood" as you would that of an automobile. Engine cooling was initially a problem solved by installing an NACA duct under the "armpit" of each wing.

Accessibility of the pusher engine is outstanding, and the lone rudder is attached to the left vertical stabilizer (above). The unique and aerodynamically efficient egg-shaped fuselage is roomy and comfortable.

Cockpit entry is effortless and automobilelike through a single door on the right. Neither the left nor the right window can be opened for ground ventilation, so the cockpit gets toasty on warm days. You can hold the door open while taxiing, but there is no prop wash from ahead to provide cooling.

The cockpit is roomy and comfortable; the baggage compartment behind the bench-type seats can hold 250 pounds but is inaccessible in flight.

There are four pedals on the floor ahead of the pilot instead of the customary two. Two of them control the single rudder, which is attached to the left vertical stabilizer. These pedals, however, are not used for nosewheel steering. Like the Ercoupe, the nosewheel is operated with the control wheel.

The third pedal (to the right of the rudder pedals) operates the right and left hydraulic brakes simultaneously, another attempt to make the AG–14 as much like an automobile as possible. Differential braking is not possible.

The fourth and smallest pedal is aft of the right rudder pedal and is really a large foot-operated button used to engage the electric starter and is similar to starter pedals found in many automobiles of the 1940s.

You do not have to worry about someone out front walking into the propeller disk when starting the 90-horsepower Continental engine because there is no propeller on the front end of the airplane. On the other hand, you cannot see behind and between the booms to determine if someone might have crawled in there. So it is important to yell "clear" loudly and pray that someone standing behind can hear you. (It is nice that you do not have to look through a propeller disk when operating the AG–14 as when operating conventional singles.)

Directional control during the takeoff and landing ground roll obviously is maintained with the control wheel.

If a wing goes down during a crosswind takeoff, do not try to pick it up with opposite aileron. This would cock the nosewheel into the wind, turn the aircraft unexpectedly, and cause the low wing to go down farther. The idea is to steer the airplane with the control wheel and apply rudder in the direction of the high wing. The rudder, however, is so small that it has little effect at low speed. It absolutely, positively cannot be used to maintain directional control during the takeoff or landing roll.

The ailerons are unusual. When you raise the right aileron about 20 degrees, for example, the left one goes down about 10 degrees. Continue moving it up to about 45 degrees, and the left aileron returns to neutral. Finally, when you raise the right aileron to its maximum limit of 60 degrees, the left aileron goes up about 10 degrees.

The explanation given for this odd arrangement has to do with coupling the nosewheel to the control wheel. To prevent the nosewheel from moving too much for a given movement of the control wheel and thereby being too sensitive, the linkage was adjusted so that the ailerons move farther than necessary to get optimum nosewheel movement for ground handling.

Forward visibility is unobscured, and with the wings behind the cockpit, visibility to the side is equally outstanding.

When rotating for takeoff, there is a tendency to raise the bottom of the windshield to the horizon because there is no engine cowling that can be used to establish climb attitude as is done in conventional tractor airplanes. This results in an excessively steep attitude, too low an airspeed, and a reduction in climb performance.

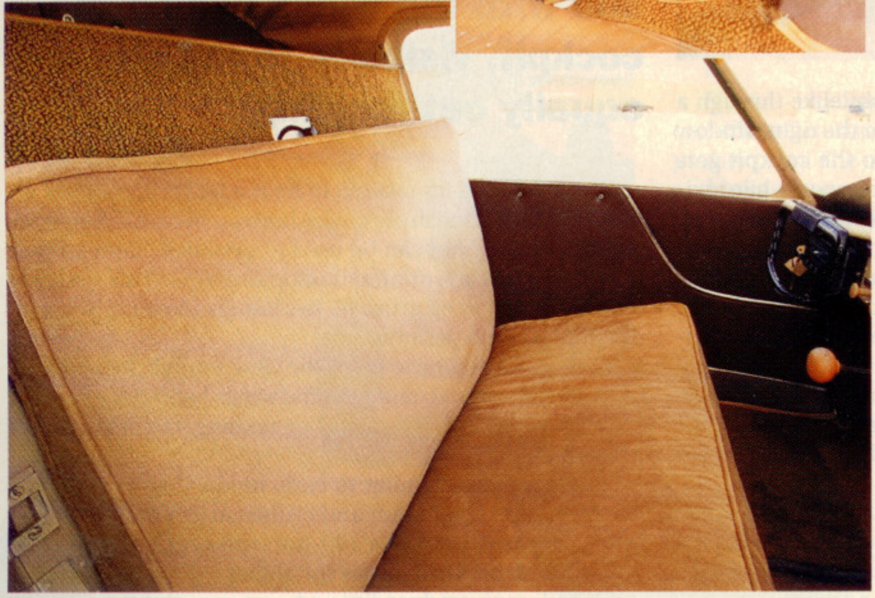
Without an engine to block the view, though, forward visibility is unobscured, and with the wings behind the cockpit, visibility to the side is equally outstanding, much like that of a helicopter.

Performance is similar to early model Cessna 150s. The AG–14 climbs at 630 fpm and cruises at 110 mph. With the approved substitute of a 100-horsepower Continental O-200-B, climb performance is sprightlier.

The ailerons produce little adverse yaw, and the slip-skid ball stays in its cage whether using coordinated rudder input or not. After a while, I simply took my feet off the pedals and rested them flat on the floor.

A delightful characteristic of the cute little airplane is that very little trim is required during power and airspeed changes. But when needed, the overhead elevator trim handle is rotated in a horizontal plane like on many postwar Piper aircraft. Most pilots need a little time to learn which way to turn the trim to obtain the desired result. When uncertain, just trim in either direction. If elevator pressure increases instead of decreases, just turn it the other way.

"Four on the floor" in this case refers to the pedals (right). Two rudder pedals control the single rudder—a single pedal is used for braking; the smallest pedal engages the starter.



The vertical stabilizers are small and there is no vertical surface area that would be contributed by a conventional fuselage. Consequently, the aircraft has weak yaw stability. It is not so bad, however, that you cannot fly with your feet on the floor (as was intended), but the nose does hunt a bit. One quickly gets used to mild fishtailing in turbulence, much like those pilots who fly Beechcraft Bonanzas.

Wing dihedral outboard of the booms is a steep 7 degrees, and lateral stability is outstanding. Combine this with the small rudder, and you can understand why only shallow slipping is possible.

Elevator movement is limited as it is on the Ercoupe. This makes both aircraft stall- and spin-resistant. Intentional spins, it appears, are virtually impossible. Aerobatics are not approved.

The airplane was introduced before stall-warning indicators were required, but such a warning would be redundant. During an attempt to stall the AG–14, the entire airplane buffets in a way that warns immediately and effectively of an excessive angle of attack. A slight release of back-pressure restores normal flight.

If you ignore the buffeting and pull the control wheel fully aft, the nose drops to about 10 degrees above the horizon, and the aircraft continues to fly along merrily in this mushing manner. While locked in such a stall, the aircraft exhibits a high sink rate and better-than-expected roll control.

Landings offer a surprise to those who simply approach at the best-glide speed of 65 mph and then attempt to arrest the sink rate and flare. At this speed there is insufficient elevator effectiveness to prevent plopping onto the ground no matter how much or how quickly you pull back on the wheel. The best way to land an AG–14 is to glide at 65 mph for most of the approach and then increase to about 80 mph when still a few hundred feet above the ground. This extra speed provides the elevator effectiveness needed to flare and make a normal landing.

During one's first landing, though, there is a tendency to flare too high because of how close to the ground you sit. After that first landing, all that follow are a snap. You do need to fly the nosewheel onto the ground, however. If you hold it off until falling on its own, it will hit with a bang.

When landing, do not forget that there is insufficient rudder to maintain directional control. Use the control wheel for ground steering.

When making a crosswind landing, do not land in a crab as you would with an Ercoupe. Instead, straighten the airplane just before touchdown, and be certain that the control wheel is neutral before allowing the nosewheel to touch down.

Landing with one wing low can create a problem for the unwary. By holding left aileron during touchdown on the left main landing gear with a left crosswind, for example, remember that this also cocks the nosewheel to the left. So be certain not to lower the nosewheel onto the ground until first neutralizing the ailerons and the nosewheel. Otherwise, you might go for a swerving ride you do not expect.

Limited elevator effectiveness makes it difficult to flare for a landing with two people on board and when using full flaps. Landings are much easier using only half flaps.

Only five AG–14s were built, and the airplane used for this report (serial number 3) is one of possibly two surviving examples.

The petite fork-tailed pusher did not have the opportunity to evolve into something better.

Unfortunately, the AG–14 was introduced at the beginning of the Korean War when building materials came under tight control. As a result of this and the failure of the postwar boom to materialize (especially for two-place airplanes), the petite fork-tailed pusher did not have an opportunity to evolve into something better. Instead, Anderson, Greenwood & Company directed its attention toward military research. It is now a major manufacturer of pressure-relief valves, manifolds, and other components.

N314AG currently is owned by Asher Ward, an aircraft broker in Van Nuys, California, who specializes in buying and selling unusual aircraft. Anyone interested in additional information about the Anderson-Greenwood AG–14 can call him at 818/780-6969 or send an e-mail (classicairvny@aol.com). AOPA

i Visit the author's Web site (www.barryschiff.com).

SPECSHEET

Anderson-Greenwood AG–14

Price as new: $4,200 (1950)

Specifications

- Powerplant ....Continental C-90-12FP, 90 hp
- Recommended TBO ....1,800 hr
- Propeller ....Hartzell 72-in dia, ground-adjustable
- Length ....22 ft
- Height ....6 ft 5 in
- Wingspan ....34 ft
- Wing area ....120 sq ft
- Wing loading ....11.7 lb/sq ft
- Power loading ....15.6 lb/hp
- Seats 2
- Cabin width ....44 in
- Standard empty weight....861 lb
- Max takeoff weight ....1,400 lb
- Max useful load ....539 lb
- Max payload w/full fuel ....395 lb
- Max landing weight ....1,400 lb
- Fuel capacity, std ....24 gal
- Oil capacity ....4.8 qt
- Baggage capacity ....250 lb, 8 cu ft

Performance

- Takeoff distance over 50-ft obstacle ....1,887 ft
- Rate of climb, sea level ....630 fpm
- Max level speed, sea level ....120 mph
- Cruise speed/endurance w/45-min rsv, std Fuel (fuel consumption) @ 70% power ....110 mph/4.1 hr (30 pph/5 gph)
- Absolute ceiling ....19,000 ft
- Landing distance over 50-ft obstacle....1,451 fpm

Limiting and Recommended Airspeeds

- V_X (best angle of climb) .... 68 mph
- V_Y (best rate of climb) .... 75 mph
- V_{NO} (max structural cruising) ....132 mph
- V_{NE} (never exceed) ....148 mph
- V_A (design maneuvering) ....109 mph
- V_{FE} (max flap extended) ....94 mph
- V_{S1} (stall, clean)....61 mph
- V_{SO} (stall, in landing configuration) ....57 mph

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions, ground-adjustable propeller in high pitch unless otherwise noted.